IN THE SPECIFICATION

Please amend the specification as follows:

The Brief Description of the Drawings is amended as follows:

FIG. 1 is an cross-section view of an apparatus according to various embodiments;

~~FIG. 2 is~~ FIGS 2A and 2B are details ~~a detail~~ of the view shown in FIG. 1 ;

FIGS. 3 – 5 are flow charts illustrating several methods according to various embodiments; and

FIG. 6 is a depiction of a computing system according to an embodiment.

The paragraph beginning at page 2, line 28 is amended as follows:

In some embodiments, the thermal interface material 24 comprises an array 25 of either densely packed multi-walled or single walled carbon nanotubes or a combination of both single and double walled nanotubes. In some embodiments, either the heat spreader 16 or a lower surface thereof, is formed of, or coated with, a high thermal conductivity metal (and its alloys) such as molybdenum or copper, semiconductor material such as silicon or compounds as SiC (silicon carbide). In some embodiments the buffer layer consists of a film selected from the group consisting of Cr, Mo, Ti, W, SiC and TiC.

The paragraph beginning at page 4, line 5 is amended as follows:

If the height h of the spacers 28 is less than the thickness of thermal interface material 24 by a predetermined amount when the die and the heat spreader are forced together during assembly until they both contact spacers 28, a controlled bias force is applied between the free ends of some carbon nanotubes of the array of carbon nanotubes 25 and the backside surface of die 14 to provide a good thermal contact.

In some embodiments, a surface of the heat spreader is formed from a material having a hardness substantially less than that of the nanotubes and free ends 27 of at least some of the carbon nanotubes 26 project from the array of carbon nanotubes24 to embed them in the surface 26 of the heat spreader 16 as shown in the detail 2B which is not to scale. In some embodiments the surface is a coating 26.

By increasing the difference between the thickness of the thermal interface material 24 and the height of the gap defined by spacer 28, the bias force for the junction between thermal intermediate 24 and die 14 can be controllably increased when a sufficient loading force is applied to the heat spreader 16 to have the spacer 28 engage both the surface of both heat spreader 16 and die 14. By controlling the loading force and limiting it to a predetermined maximum force, the array of nanotubes 25 of the thermal interface material 24 will be deformed elastically by the bias force so that the highly conductive longitudinally oriented carbon nanotubes remain intact while they establish a highly conductive path between the die and heat spreader.

The paragraph beginning at page 6, line 20 is amended as follows:

Figure 6 is a depiction of a computing system according to an embodiment. One or more of the embodiments of apparatus with one or more dies having a thermal intermediate with a thermal interface layer and a buffer layer interposed between the die and a heat spreader may be used in a computing system such as a computing system 600 of FIG. 6. The computing system 600 includes at least one processor (not pictured), which is enclosed in a microelectronic device package 610, a data storage system 612, at least one input device such as a keyboard 614, and at least one output device such as a monitor 616, for example. In some embodiments' the data storage system 612 is a memory device such as a dynamic random access device. The computing system 600 includes a processor that processes data signals, and may include, for example, a microprocessor available from Intel Corporation. In addition to the keyboard 614, an embodiment of the computing system includes a further user input device such as a mouse 618, for example.